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Introduction

Bright Burnishing Tools Private Limited

About Us

BBTPL was incorporated in the year 1994 with an intent to carve a niche in the new arena of “Burnishing Tools” and has with sustained efforts, achieved it over the period through the intensive concept selling and aggressive sales promotional measures.

Promotor

The Company was founded by Mr Devraj C., a technocrat engineer having over 25 years experience, specialized in “Tools & Dies” and worked in higher echelon of the management in a premier corporate entity in Coimbatore, India. He had a stint of few years in Switzerland, prior to formation of BBTPL, on “Deputation” for advanced training and has successfully implemented the techniques and procedures learned within BBTPL.

In addition to being a specialist in “Tools and Dies”, he also designed and manufactured wide range of Multi-specialty Tools, Jigs, Fixtures, Cutting Tools and Specialized Burnishing Tools and Machines.

Infrastructure & Team

We have specialized machines in-house for multifarious operations and are well manned by the qualified engineers, supervisors and quality controllers. We also have an independent department, which handles quality, inspection and testing of the tools and machines. The tools, being taylor-made, are manufactured with utmost diligence to ensure trouble-free operation.

In addition to the comprehensive manufacturing setup, Bright has a keen focus on upgrading to meet market requirements. To this end Bright have an extensive R & D department comprising of resident and consultancy professional drawn from industry and technical institutions throughout India. Since the inception of the company many products have been developed to meet specific industry requirements.
We are the first company in India to achieve ISO Certification in the burnishing tools segment. The certificate is for Design, manufacture, service and marketing of all types of Burnishing Tools. At present we have upgraded our quality management system to ISO 9001:2000 version. By this, we are able to control our processes at Incoming, In-process and Final Stages.

As a manufacturer of high reliability tools, Bright knows that everything depends on the quality of our products. From that knowledge comes our ongoing commitment to manufacture products to meet the highest quality standards.

Bright and its employees are committed to continuously improving the processes by which we provide our products and services, so that our work meets requirements and is done right the first time.

Our manufacturing facility meets ISO 9001:2000 standards and we are working aggressively to meet the rigorous standards demanded by ISO.

Customer satisfaction is a key indicator of quality and so we seek our current and prospective customers' inputs and involvement in improving our products and services.
About Burnishing

Introduction

Technical Description

Burnishing is a cold rolling process without removal of metal. A set of precision rollers is used to roll on the component surface with adequate pressure. As a result all the pre-machined peaks gets compressed into valleys thus giving a mirror like surface finish.

Advantages of Roller Burnishing

1. Mirror like surface finish
   Surface finish ranging from 0.05 Ra – 0.2 Ra can be achieved easily by using Bright Burnishing Tools. Both ferrous and non-ferrous materials can be Roller Burnished in soft stage, Heat Treated components cannot be burnished.

2. Dimensional Consistency / Repeatability
   Very close and consistent dimensional tolerance can be achieved in several thousand components by using Bright Burnishing Tools. Assembly problems are totally eliminated since part dimensions are maintained within tolerances.

3. Single Pass Operation
   Since the roller burnishing process is a single pass operation manufacturing cycle times can be reduced compared to other fine finishing operations such as grinding, honing or lapping.

4. Increase in Surface Hardness
   Since Roller burnishing operation is cold rolling process, work hardening takes place on the cold worked surface. Roller Burnishing gives a better wear resistance on the rubbing surfaces thereby part service life increases.

5. Reduces the Reworks and Rejections
   Control of tight tolerances and high surface finishes using conventional techniques such as boring or reaming can be difficult, especially in a mass production situation. Bright Burnishing tools can eliminate these problems by providing high repeatability finish sizing. Pre burnish sizes are relatively open tolerated and achieved easily by conventional machining methods. Generation of high repeatable sizing minimises rework and rejection during the assembly process thus saving time and cost.

6. Multiple Usage
   You can use Bright Roller Burnishing Tools in CNC Turning centers and CNC Machining centers, Conventional Lathes, Drilling Machines, Automats, etc. You can also use burnishing tools in specially built burnishing machines for mass production.
Technical Description

Bright Multi roller ID burnishing tools are available for through & blind bores. Component having ID 5mm and above can be burnished. Though the tools have standard burnishing length the same can be redesigned according to the customers requirement. On request the tools can be supplied with self-feed design.

Ordering Guide

Tools are available in three types

<table>
<thead>
<tr>
<th>Series</th>
<th>Dia</th>
<th>Burnishing Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH</td>
<td>5mm-68mm</td>
<td>Upto 60 mm</td>
</tr>
<tr>
<td>LG</td>
<td>5mm-68mm</td>
<td>60mm &amp; above</td>
</tr>
<tr>
<td>UNL</td>
<td>68mm &amp; above</td>
<td>Any Length</td>
</tr>
</tbody>
</table>

Adjustable Tool diameter within a range
Superior dimensional consistency after burnishing
Mirror surface finish in the bores after burnishing
Single pass operation
Can be used in lathes, drill machine and CNC Machines
Quick return on investment
High productivity

Sample Applications

Rocker Arm
Connecting Rod
Engine Casing
Bright multi roller OD burnishing tools are available for plain & stepped shafts. Tools available for component OD 2mm and above. For Plain shaft tools can be supplied with hollow shank so that shaft length greater than tool length can also be burnished.

**Technical Description**

- Available from 2mm and above
- Adjustable Tool diameter within a range
- Superior dimensional consistency after burnishing
- Mirror surface finish in the shafts after burnishing
- Single pass operation
- Can be used in lathes, drill machine and CNC Machines
- Quick return on investment
- High productivity

*Sample Applications*

**Ordering Guide**

- Series
- OD Dia
- Bore Type
- BL
- Shank
- Burnishing Length
- Plain/Stepped Shaft
- Outer Diameter-Size(mm)

Kindly send us a part drawing or detailed hand sketch and request a quotation.

**Tools For Plain & Stepped Shaft**

**Large Outer Diameter Burnishing Tool**

**Precision Turned Components**

Bright Burnishing Tools Private Limited, Coimbatore -641037, India
Phone - 91-422-2210122, 4387340 Fax - 91-422-4387622
e-mail - burnish@vsnl.com Website - www.brightburnishingtools.com
Multi Roller Tools

Internal and External Taper Burnishing Tool

Technical Description

Internal and External Tapers can be burnished with Bright taper burnishing tools. These tools can be supplied in any angles according to the component design. These tools are used to achieve good blue matching between mating parts.

Ordering Guide

- Available from minor diameter 5mm and above
- Highly suitable for matching tapers
- Maximum blue matching after burnishing
- Tools available in required taper angles
- Can be used in lathes, drill machine and CNC Machines
- Highly suitable for high pressure applications

Sample Applications

High Pressure Hydraulic End Fittings

Kindly send us a part drawing or detailed hand sketch and request a quotation.
Technical Description

Flat circular faces can be burnished with Bright face burnishing tools. A minimum relief of 5mm in the center of the component is required for effective functioning of the tool.

- Available for flat circular face with center relief greater than 5mm
- Mirror surface finish in flat circular faces
- Ideal for face matching application
- Single pass operation
- Can be used in lathes, drill machine and CNC Machines
- Quick return on investment
- High productivity

Ordering Guide

- FBT- Series
- Shank
- Relief at centre (mm)
- Outer Diameter-Size(mm)

Sample Applications

Kindly send us a part drawing or detailed hand sketch and request a quotation.
Bright special burnishing tools are made to customer specific requirements. Special profile tools can be designed according to customer specification. Some of the special tools which are designed are listed below for your reference.

**Bright Internal Diameter Burnishing Tool**

**Bright Large Face Burnishing Tool**

**Bright Face and Internal Diameter Tool**

**Kindly send us a part drawing or detailed hand sketch and request a quotation.**

**Bright Combined Bore Tool**
Multi Roller Special Tools

Bright Internal Ball Race Tool 1

Bright External Ball Race Tool 2

Bright Spherical Burnishing Tool

Bright Large Outer Diameter Burnishing Tool

Bright Multi-ball Special Burnishing Tool

Ordering Guide
Kindly send us a part drawing or detailed hand sketch and request a quotation.
Technical Description

Bright single roller carbide OD burnishing tool can burnish any larger OD greater than 25mm. The tool is supplied with superior quality finished carbide rollers mounted on precision bearing arrangement.

Bright single roller ‘H’-type tool can burnish component diameter between 15mm and 60mm. Interchangeable Carbide/HSS rollers are assembled in the retaining cage and guide roller arrangement. Rollers can be changed easily. This tool is highly suitable for Batch production and mass production.

Ordering Guide

- **Best suitable for frequently varying job diameters**
- **Single tool can burnish any diameter**
- **Best quality CARBIDE Rollers are used**
- **Single pass operation**
- **Can be used in lathes, and CNC Machines**
- **Highly cost effective**
- **Available in different shanks**

Kindly send us a part drawing or detailed hand sketch and request a quotation.
Multi Surface Burnishing Tool (Carbide)

Technical Description

Bright Multi surface carbide single roller burnishing tool can burnish any larger ID, OD and flat circular faces. The tool can be used for component diameter greater than 35mm. The tool is supplied with superior quality finished carbide rollers mounted on precision bearing arrangement.

- Highly suitable for large OD, ID & FACE
- Best suitable for frequently varying jobs
- Single tool can burnish OD, ID & FACE
- Best quality CARBIDE Rollers are used
- Single pass operation
- Can be used in lathes, and CNC Machines
- Highly cost effective
- Available in different shanks

Sample Applications

Tools for Varying Large OD, ID & Face

Ordering Guide

- MSRT
- Shank Type: Multi-surface Single Roller Tool

Kindly send us a part drawing or detailed hand sketch and request a quotation.
Technical Description

**Single Roller Groove Burnishing Tool**

Bright single roller groove burnishing tools can burnish grooves on OD. This is a special tool in the single roller tool category. Groove widths 1mm and above can be burnished. The tools are available both in Carbide and HSS Rollers.

**Single Roller Profile Burnishing Tool**

Bright single roller profile burnishing tools are special tools for burnishing special profiles on OD. Burnishing Rollers can be supplied according to the customers specification.

Ordering Guide

Kindly send us a part drawing or detailed hand sketch and request a quotation.

---

Sample Applications
Different types of burnishing tools used are shown below.

- ID Tool Thru Bore
- ID Tool Blind Bore
- ID Taper Tool
- OD Taper Tool
- Face Burnishing Tool
- OD Tool Stepped Shaft
- Face Groove Burnishing
- Ball Race OD Profile Burnishing
- ID Taper Tool Thru Bore
- Groove Burnishing Tool
- Combined Bore & Chamfer Tool
- H-Type Single Roller Tool
- Single Roller OD Tool
- ID Stepped Bore Tool
- Combined ID and OD Burnishing
- Combined ID and Face Burnishing
- Combined Bore and Chamfer Tool
- Convex Profile Burnishing
- Concave Profile Burnishing
Applications

Bright Burnishing Tools are being used in various sectors like:

- Precision Automobile Components
- Machine Tool Parts
- Precision Turned Components
- Textile Machine Parts
- Hydraulic & Pneumatic Components
- Railway Wagon and Engine Parts
- Motor and Pump Parts
- Aircraft Parts
- Home Appliance Components
- Defence Vehicle and Equipment Parts
- Agriculture and Farm Equipment Components
- Other than shown applications, tools can be made upon request for varied application.
Bright Burnishing Tools are for wide range of applications are shown below.

- Primer
- Shaft
- Submersible Bush
- Rocker arm
- Connecting Rod
- Oil Pump Body
- Engine Head
- Motor Shaft
- Valve Stem
- Nozzle
- Bush
- Web
- Shock Absorber
- Precision Turned Components
- Precision Turned Components
- Precision Turned Components
- Engine Casing
- Pneumatic Component
- Piston
- Cycle cone
### STANDARD INTERNAL DIAMETER TOOLS

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>SERIES WITH DIA RANGE</th>
<th>SHANK SIZE</th>
<th>STANDARD BURNISHING LENGTH (PLAIN BORE)</th>
<th>BURNISHING LENGTH FOR THROUGH BORE</th>
<th>ADJUSTING RANGE IN MM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>SH 0616</td>
<td>MT2</td>
<td>60</td>
<td>73</td>
<td>- 0.05 + 0.2</td>
</tr>
<tr>
<td>2.</td>
<td>SH 1626</td>
<td>MT2</td>
<td>60</td>
<td>73</td>
<td>- 0.1 + 0.3</td>
</tr>
<tr>
<td>3.</td>
<td>SH 2635</td>
<td>MT2</td>
<td>65</td>
<td>80</td>
<td>- 0.2 + 0.4</td>
</tr>
<tr>
<td>4.</td>
<td>SH 3545</td>
<td>MT2</td>
<td>65</td>
<td>80</td>
<td>- 0.2 + 0.4</td>
</tr>
<tr>
<td>5.</td>
<td>SH 4555</td>
<td>MT3</td>
<td>70</td>
<td>85</td>
<td>- 0.2 + 0.4</td>
</tr>
<tr>
<td>6.</td>
<td>SH 5568</td>
<td>MT3</td>
<td>70</td>
<td>85</td>
<td>- 0.2 + 0.4</td>
</tr>
<tr>
<td>7.</td>
<td>LG 0616</td>
<td>MT2</td>
<td>110</td>
<td>125</td>
<td>- 0.05 + 0.2</td>
</tr>
<tr>
<td>8.</td>
<td>LG 1626</td>
<td>MT2</td>
<td>110</td>
<td>125</td>
<td>- 0.1 + 0.3</td>
</tr>
<tr>
<td>9.</td>
<td>LG 2635</td>
<td>MT3</td>
<td>110</td>
<td>125</td>
<td>- 0.2 + 0.4</td>
</tr>
<tr>
<td>10.</td>
<td>LG 3545</td>
<td>MT2</td>
<td>200</td>
<td>220</td>
<td>- 0.2 + 0.4</td>
</tr>
<tr>
<td>11.</td>
<td>LG 4568</td>
<td>MT3</td>
<td>200</td>
<td>220</td>
<td>- 0.2 + 0.4</td>
</tr>
<tr>
<td>12.</td>
<td>UNL 68 - 110</td>
<td>MT3</td>
<td>160</td>
<td>180</td>
<td>- 0.2 + 0.4</td>
</tr>
<tr>
<td>13.</td>
<td>UNL 110 - 200</td>
<td>MT4</td>
<td>160</td>
<td>180</td>
<td>- 0.2 + 0.6</td>
</tr>
</tbody>
</table>

Note: In these series Burnishing Length can be increased by means of special adaptors. Tool Holder other than mentioned is optional.

### STOCK ALLOWANCE

<table>
<thead>
<tr>
<th>DIAMETER</th>
<th>STOCK ALLOWANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 - 12 mm</td>
<td>0.01 - 0.02 mm</td>
</tr>
<tr>
<td>13 - 25 mm</td>
<td>0.013 - 0.020 mm</td>
</tr>
<tr>
<td>26 - 50 mm</td>
<td>0.013 - 0.025 mm</td>
</tr>
<tr>
<td>50 and above</td>
<td>0.018 - 0.035 mm</td>
</tr>
</tbody>
</table>

### SPEED & FEED CHART

<table>
<thead>
<tr>
<th>Tool Dia (mm)</th>
<th>Speed (RPM)</th>
<th>Tool Feed Rate (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 - 10</td>
<td>1020 - 4300</td>
<td>0.25 - 0.50</td>
</tr>
<tr>
<td>10 - 15</td>
<td>610 - 3100</td>
<td>0.45 - 0.90</td>
</tr>
<tr>
<td>15 - 20</td>
<td>500 - 1800</td>
<td>0.75 - 0.90</td>
</tr>
<tr>
<td>20 - 25</td>
<td>380 - 1500</td>
<td>0.8 - 1.4</td>
</tr>
<tr>
<td>25 - 30</td>
<td>300 - 1000</td>
<td>1.2 - 1.7</td>
</tr>
<tr>
<td>30 - 35</td>
<td>275 - 900</td>
<td>1.6 - 2.0</td>
</tr>
<tr>
<td>35 - 40</td>
<td>235 - 825</td>
<td>1.9 - 2.4</td>
</tr>
<tr>
<td>40 - 45</td>
<td>215 - 700</td>
<td>2.1 - 2.6</td>
</tr>
<tr>
<td>45 - 50</td>
<td>190 - 610</td>
<td>2.8 - 3.2</td>
</tr>
<tr>
<td>50 - 55</td>
<td>170 - 540</td>
<td>3.4 - 3.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tool Dia (mm)</th>
<th>Speed (RPM)</th>
<th>Tool Feed Rate (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 - 60</td>
<td>160 - 510</td>
<td>3.8 - 4.2</td>
</tr>
<tr>
<td>60 - 65</td>
<td>150 - 460</td>
<td>4.2 - 4.5</td>
</tr>
<tr>
<td>65 - 70</td>
<td>140 - 435</td>
<td>2.2 - 2.4</td>
</tr>
<tr>
<td>70 - 75</td>
<td>125 - 400</td>
<td>2.5 - 2.6</td>
</tr>
<tr>
<td>75 - 90</td>
<td>110 - 380</td>
<td>2.5 - 2.3</td>
</tr>
<tr>
<td>90 - 100</td>
<td>95 - 325</td>
<td>3.2 - 3.9</td>
</tr>
<tr>
<td>100 - 115</td>
<td>85 - 285</td>
<td>3.9 - 4.6</td>
</tr>
<tr>
<td>115 - 130</td>
<td>75 - 225</td>
<td>4.5 - 5.2</td>
</tr>
<tr>
<td>130 - 140</td>
<td>70 - 210</td>
<td>5.8 - 5.9</td>
</tr>
<tr>
<td>&amp; above</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above given speed and feed are guidelines. However exact parameters should be achieved with trials.
### TROUBLE SHOOTING

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burnishing finish not achieved</td>
<td>Wrong tool setting</td>
<td>Correct the tool setting as explained</td>
</tr>
<tr>
<td>Burnished bore having taper and ovality</td>
<td>Pre-burnishing condition not maintained</td>
<td>Check pre-burnished part for taper and ovality and correct pre-burnishing operation such as drilling, turning, reaming, boring to desired tolerances</td>
</tr>
<tr>
<td>Excessive heat produced during burnishing</td>
<td>Inadequate flow of coolant</td>
<td>Use continuous flow of proper coolants</td>
</tr>
<tr>
<td>Poor life of Rollers</td>
<td>Inadequate flow of coolant, Improper speed and feed selection, Incorrect burning allowance</td>
<td>Use continuous flow of proper coolants, Select proper speed and feed as per chart, Check pre-burnishing dimension and correct pre-burnishing operation to obtain desired dimension.</td>
</tr>
<tr>
<td>Poor surface finish after some usage to tool.</td>
<td>Uncleaned tool, Wear out of rollers</td>
<td>Clean the tool properly after use and oil before storage, Replace wornout rollers.</td>
</tr>
<tr>
<td>Breakage of cage and guide rollers</td>
<td>Incorrect burning allowance, Excess load</td>
<td>Check and correct burning allowance, Set the tool as per the guide.</td>
</tr>
</tbody>
</table>

Note: The cleaning and lubricating of tool before and after every use provides a continuous trouble free service.

### SURFACE FINISH FOR VARIOUS OPERATIONS

<table>
<thead>
<tr>
<th>Operation</th>
<th>Burnishing</th>
<th>Honing</th>
<th>Ground</th>
<th>Reaming</th>
<th>Bore</th>
<th>Turning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Finish (RA)</td>
<td>0.05 - 0.2</td>
<td>0.1 - 0.2</td>
<td>0.2 - 0.4</td>
<td>0.4 - 0.8</td>
<td>0.8 - 1.2</td>
<td>1.5 - 2.0</td>
</tr>
<tr>
<td>Diameter Change (mm)</td>
<td>0.025</td>
<td>0.063</td>
<td>0.063</td>
<td>0.250</td>
<td>0.50</td>
<td>0.95</td>
</tr>
</tbody>
</table>

### SURFACE FINISH CHART

<table>
<thead>
<tr>
<th>Ra</th>
<th>( R_{max} )</th>
<th>( R_z )</th>
<th>( R_{z\max} )</th>
<th>( N )</th>
<th>Triangle Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0013a</td>
<td>0.05s</td>
<td>0.05z</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.025a</td>
<td>- .01s</td>
<td>0.1z</td>
<td></td>
<td>N1</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>0.05a</td>
<td>0.2s</td>
<td>0.2z</td>
<td></td>
<td>N2</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>0.10a</td>
<td>0.4s</td>
<td>0.4z</td>
<td></td>
<td>N3</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>0.20a</td>
<td>0.8s</td>
<td>0.8z</td>
<td></td>
<td>N4</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>0.40a</td>
<td>1.6s</td>
<td>1.6z</td>
<td></td>
<td>N5</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>0.80a</td>
<td>3.2s</td>
<td>3.2z</td>
<td></td>
<td>N6</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>1.6a</td>
<td>6.3s</td>
<td>6.3z</td>
<td></td>
<td>N7</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>3.2a</td>
<td>12.5s</td>
<td>12.5z</td>
<td></td>
<td>N8</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>6.3a</td>
<td>25.0s</td>
<td>25.0z</td>
<td></td>
<td>N9</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>12.5a</td>
<td>50.0s</td>
<td>50.0z</td>
<td></td>
<td>N10</td>
<td>▼▼▼▼</td>
</tr>
<tr>
<td>25.0a</td>
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<td>100.0z</td>
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<td>50.0a</td>
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<td></td>
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</tr>
</tbody>
</table>

Note: \( R_t = Ra \times 4 \)
Correspondence to:

Bright Burnishing Tools Private Ltd
42, N.G. Ramaswamy Road,
Pappanaickenpalayam
Coimbatore
India
Pin code – 641037

For further information on our range of products and services please contact

**Director - Sales**
Phone : 91 422 2210122 & 4387340
Fax : 91 422 4387622
e-mail : burnish@vsnl.com
Web: www.brightburnishingtools.com

**Sales and Service Network at:**
Delhi, Maharashtra, Gujarat, Karnataka,
Andrapradesh and Tamilnadu

**Abroad enquires**
Contact thru email burnish@vsnl.com